

It's Happening, so What?

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Informatics

- **Digital transformation** shows pervasive role of Informatics
 - Important for innovation, growth and wealth
 - Informatics has direct impact on (nearly) everything
- Foundational – methods and artefacts
- Metamorphosis from a computer to global machine
 - And every **thing** touched by Software becomes a Computer

Informatics (2)

- Artificial Intelligence/Machine learning is automating working and decision making
 - Discussions between **Utopia and Dystopia**
 - Neural networks as current paradigm of AI: Roy Amara (ITF's president) with his “law”: **We tend to overestimate the effect of a technology in the short run and underestimate it in the long run**
 - Many AI summers and winters since 50s
 - Current boom required related technology stack: processing power, memory, available/accessible data

Many Critical Issues

- **Personalization**

- Ubiquitous and absolutely required to counteract information overload
- **Implicit personality acquisition:** By analyzing user behavior and user generated content, it is possible to gain deep knowledge about a user – even about the user’s personality (“Big Five” traits)
 - Micro-blogs (Twitter)
 - Social media (Facebook, Weibo)
 - Games
 - Mobile phone logs
 - Stereotypical stories
 - Selected pictures

“Big Five” traits:

- **O**penness to experience
- **C**onscientiousness
- **E**xtraversion
- **A**greeableness
- **N**euroticism

→ High danger of misuse (remember Cambridge Analytica!)

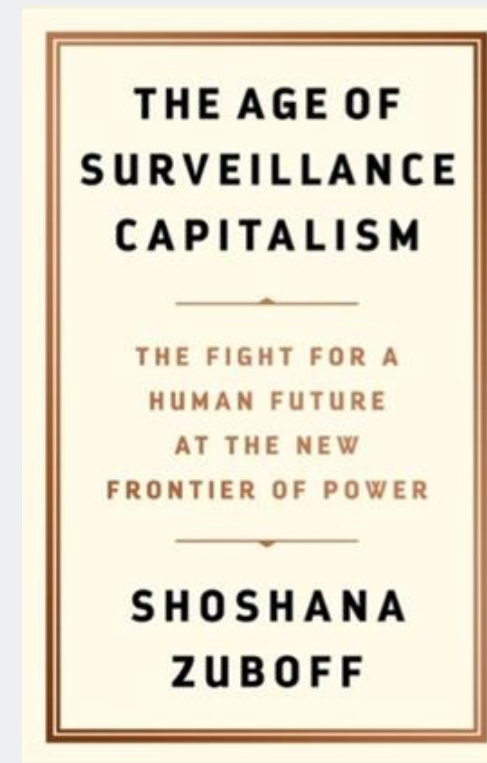
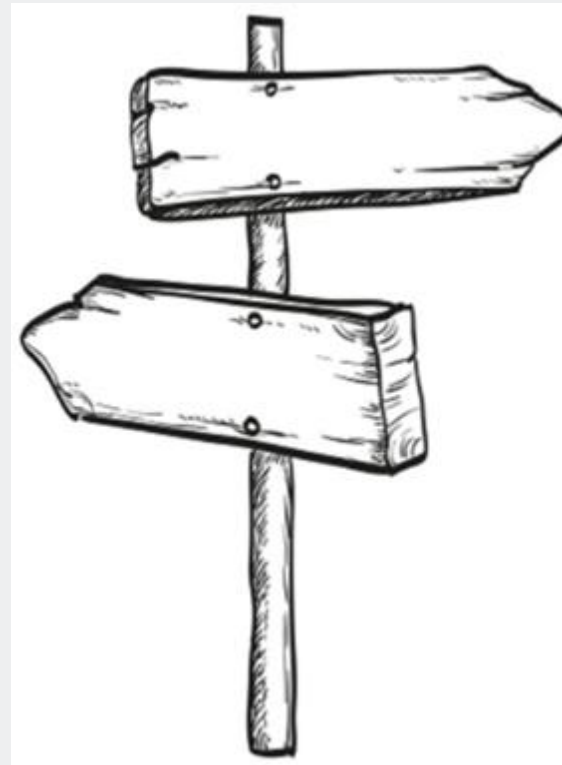
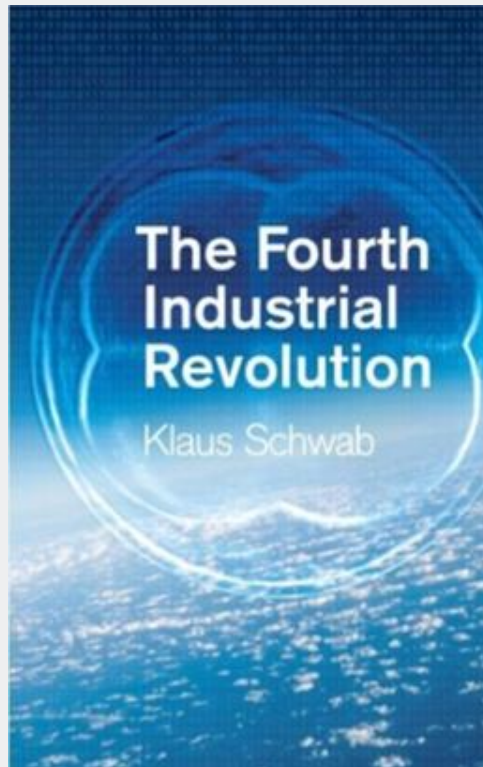
Many Critical Issues (2)

- Concentration and monopolies in the Web
- Crucial in economic, political and even military conflicts, even autonomous weapons
- Echo chambers and fake news (will social media become 5. power?)
- Privacy
- Automation and work
- **The system is failing**, stated by Tim Berners-Lee
- **The Internet apologizes**, Jaron Lanier, a pioneer in virtual reality

In April 2019 Vienna Workshop on Digital Humanism (www.informatics.tuwien.ac.at/dighum)

Which Way to Go?

4th Industrial Revolution vs. Surveillance Capitalism



Workshop on Digital Humanism

- More than 100 participants, from Informatics, Philosophy, History, Anthropology, Law, Economics, Political Science, Mathematics, Sociology
- Three main sessions:
 - History and Impact of Information Technology
 - Humans and Society, AI and Ethics
 - Dynamics of a New World – Issues and Answers
- Presentations at website www.informatics.tuwien.ac.at/dighum

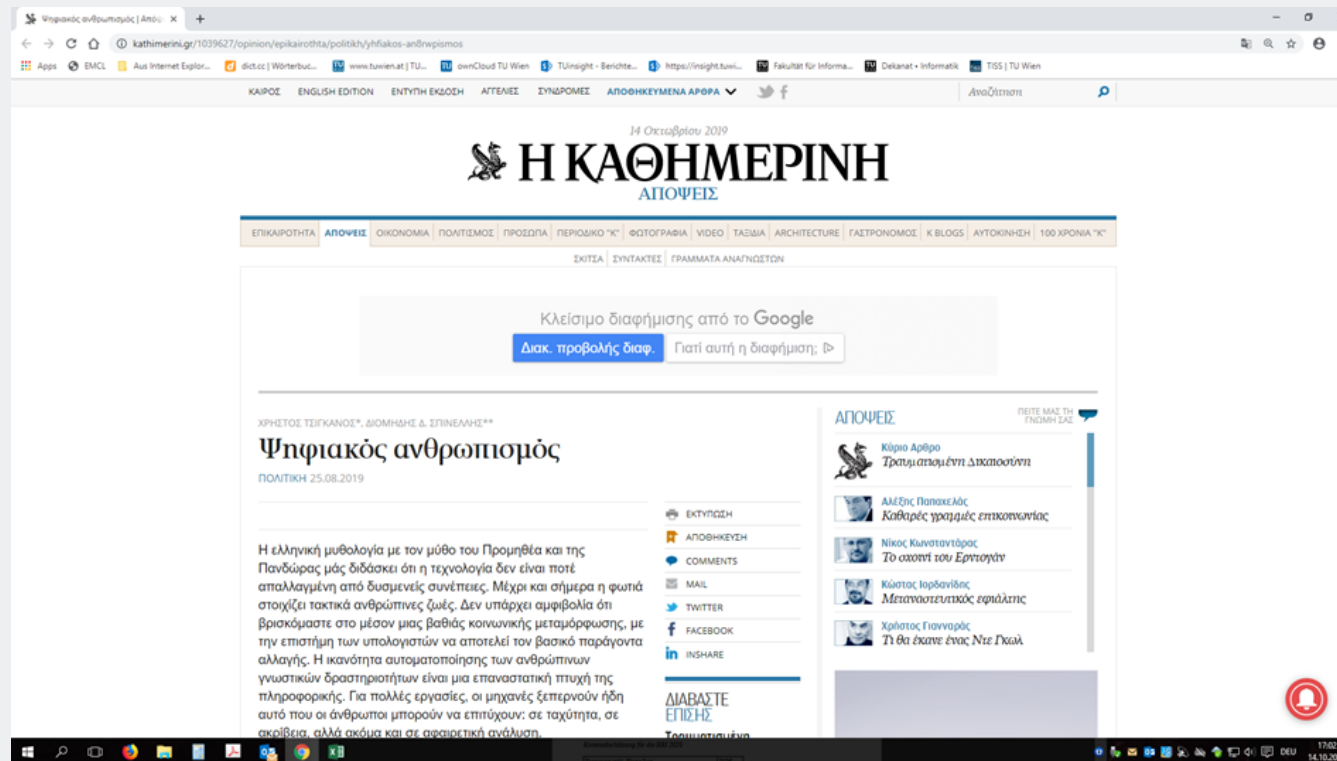


Vienna Manifesto on Digital Humanism

- The manifesto is a **call for reflection and action** (addressed to science and decision makers), and it is also a **research program**
- We should shape technologies in accordance with human values and needs instead letting technologies shape us
- Some core principles:
 - Digital technologies should be designed to **promote democracy and inclusion**
 - **Fairness, responsibility and transparency** of software programs and algorithms
 - Action/intervention **against tech monopolies**
 - **Decisions affecting human rights must be made by humans**
 - The connection of different scientific disciplines is essential
 - **Universities** create new knowledge and enhance critical thinking; they **have a particular responsibility**
 - Academic and industrial researchers must maintain an **open dialogue with society**
 - Academic teaching needs to **combine humanities, social sciences and engineering**

Impact

- Manifesto – more than 600 signatures (42 countries) and 6 language versions
- Research program in Vienna
- Featured in major Greek newspaper “**Kathimerini**”



Impact (2)

- **DigHum lecture at TU Wien / Informatics**

- Interactive lecture with presentations, discussions and group work of students
- Each group has an advisor / mix of disciplines (incl. philosophy)
- Students deliver a final report / SW and publish their results on the web
- Combined with a public lecture series with internationally renowned speakers (<https://informatics.tuwien.ac.at/stories-1758>)
 - **06.11.2019 Susan J. Winter** (University of Maryland) – “Cui Bono: A Sociotechnical View of Smart Cities”
 - **20.11.2019 Gerfried Stocker** (Artistic Director of Ars Electronica) – “Humanizing Technology through Arts”
 - **18.12.2019 Edward A. Lee** (University of California at Berkeley) – “The Coevolution of Humans and Machines”
 - **08.01.2019 Julian Nida-Rümelin** (Ludwig-Maximilians-Universität Munich) – “Digitaler Humanismus”

Conclusions

- Technology is not magic, it does not come from nowhere
- Reflects specific interests and points of view
- Need to understand and to reflect
- But we can and must actively participate
- Doing research in this field also implies a specific responsibility

We are at a crossroads

Popper (1969) “Moral Responsibility of the Scientist” <http://www.unz.com/print/Encounter-1969mar-00052>

Thank you!